

REMARKS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided, and for the acknowledgment of Applicants' Information Disclosure Statement by return of the Form PTO-1449.

Claims 1-31 are currently pending. Claims 2-4, 14, 23, 24, and 26 stand withdrawn from consideration by the Examiner as being drawn to a nonelected invention. Applicants respectfully request reconsideration of the outstanding rejection and allowance of claims 1, 5-13, 15-22, 25, and 27-31 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Claims 1, 11-13, 15-22, 29, 30, and 31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over LI (U.S. Pub. No. 2004/0108581) in view of ISAAK et al. (U.S. Pub. No. 2001/0035572).

However, Applicants note that LI and ISAAK et al. fail to teach or suggest the semiconductor claimed in claim 1.

As shown in the embodiment of Figure 9, the semiconductor package of the instant invention includes a first substrate 1 with a die receiving area, a first adhesive layer, a window opening, and a plurality of conductive traces; a first semiconductor chip 3 having the electrically active side mounted to the first substrate 1 through the first adhesive; a second adhesive layer having a first side attached to the electrically inactive side of the first semiconductor chip 3; a second substrate 2 having a die receiving area, a plurality of conductive traces, and a side with terminals; a semiconductor flip-chip 8; a third adhesive layer; and a last semiconductor chip 4 having the electrically inactive side mounted to the second side of the third adhesive layer and the electrically active side electrically

coupled to the conductive traces of the first or second substrate directly or through a redistribution device. The semiconductor die 8 is flipped onto the second substrate 2, forming a flip-chip die. The last semiconductor die 4 is attached to the inactive side of the flip-chip die 8.

The LI patent publication discloses stacked semiconductor chips including a plurality of masses of bonding material 30, and a first dielectric material 35. See figure 5 and paragraph [0038]. The adhesive of the LI device comprises a plurality of *separate and discreet* masses, and does not comprise an adhesive *layer*.

The Examiner has taken the position that, in the LI device, since the dielectric material is a flowable material that is curable and that the dielectric material is stuck between the elements, then the dielectric material 35 is an adhesive layer as claimed. However, Applicants respectfully submit that that this position is incorrect and inappropriate in this case, since the *discreet and separate* masses of bonding material 30, which are not in a layer, comprise the adhesive that *adheres* the members together. The dielectric material, which is in a layer, does not adhere the members together. In this regard, contrary to the Examiner's assertions, merely being a flowable, curable material does not mean that the dielectric material is an adhesive layer. Additionally, merely being positioned (or stuck) between two surfaces does not mean that the dielectric material *adheres* the two surfaces together. Accordingly, a flowable, curable material that is positioned between two surfaces does not, as in this case, necessarily adhere two surfaces together. Therefore, in the LI device, the material that is an adhesive is not provided in a layer; and the material that is provided in a layer is not an adhesive. Accordingly, contrary to the Examiner's contention, LI does not teach or suggest the first adhesive layer, as claimed.

Thus, contrary to the Examiner's position, LI does not include a first adhesive layer 35. Accordingly, the LI device does not include a semiconductor package including, inter alia, a first substrate having a first adhesive layer, as set forth in claim 1.

The Examiner has taken the position that the LI device includes a second substrate 40 having a die receiving area and a side 56 with terminals.

However, Applicants respectfully submit that LI fails to teach or suggest a second substrate having a die receiving area, a plurality of conductive traces, and a side with terminals. The Examiner has read the claimed second substrate on the conductive member 40 of LI. See, e.g., paragraph [0039] ("a conductive member 40"). However, LI specifically discloses that the conductive member 40 comprises a ground plane or an electromagnetic shield. See paragraph [0008] ("[t]he conductive member may comprise a ground plane or an electromagnetic interference shield"). Further, LI also specifically discloses that the conductive member 40 comprises a conductive plate, such as an aluminum plate. See paragraph [0039] ("the conductive member 40 may comprise a conductive plate, such as an aluminum plate"). Accordingly, all of the above indicates that the conductive member 40 is a solid plate of conductive material, and that the conductive member 40 does not include conductive traces. In this regard, the purpose of conductive member 40 in the LI device as a grounding or electromagnetic shielding plane would be better served by a solid plate of conductive material than by a substrate having conductive traces. Therefore, contrary to the Examiner's assertion that the conductive member 40 has conductive traces, it is respectfully submitted that the conductive member 40 of LI is a solid plate of conductive material, and does not include conductive traces.

Thus, contrary to the Examiner's position, LI does not include a second substrate having a side with terminals and conductive traces. Accordingly, the LI device does not include a semiconductor package including, inter alia, a second substrate having a die receiving area and a plurality of conductive traces and terminal, as set forth in claim 1.

The Examiner has taken the position that it would have been obvious to substitute ISAAK's substrate having a plurality of conductive traces with a side with terminals for LI's substrate.

However, Applicants respectfully submit that LI and ISAAK fail to teach or suggest a second substrate having a die receiving area, a plurality of conductive traces, and a side with terminals. As described in detail above, LI specifically discloses that the conductive member 40 comprises a conductive plate, such as an aluminum plate. Accordingly, the conductive member 40 of LI is a solid plate of conductive material, and the conductive member 40 does not include conductive traces. Moreover, the purpose of the conductive member 40 in the LI device is as a grounding or electromagnetic shielding plane. Such a purpose would not be served by a substrate having conductive traces, as in the ISAAK device. Therefore, contrary to the Examiner's assertion that it would have been obvious to substitute ISAAK's substrate having a plurality of conductive traces with a side with terminals for LI's substrate, it is respectfully submitted that it would not have been obvious to make such a substitution. In fact, the LI and ISAAK references teach away from such a substitution since providing the LI conductive member 40 with conductive traces is contraindicated, as described above.

Further, it is respectfully submitted that LI and ISAAK also fail to teach or suggest a redistribution device that couples the last semiconductor die to the conductive traces of the first or second substrate. Additionally, as recognized by the Examiner (on page 9 of the Official Action in

the rejection of claim 5 under 35 U.S.C. § 103(a) over LI in view of ISAAK and further in view of TAO), LI fails to teach or suggest the redistribution device of the instant invention. It is noted that the Examiner contends that it would have been obvious to provide the LI device with the redistribution device of TAO.

Thus, contrary to the Examiner's position, LI and ISAAK fail to teach or suggest an electrically active side that is coupled to conductive traces of the first or second substrate directly or through a redistribution device. Accordingly, the LI and ISAAK references fail to teach or suggest a semiconductor package including, inter alia, "electrically active side being electrically coupled to said conductive traces of said first or second substrate directly or through a redistribution device", as set forth in claim 1.

Accordingly, in view of all of the above, LI fails to teach or suggest the semiconductor package as claimed, and ISAAK et al. fails to cure the deficiencies of the LI device. Thus, even assuming, arguendo, that the teachings of LI and ISAAK et al. have been properly combined, Applicant's claimed semiconductor package would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 1 under 35 U.S.C. § 103(a) over LI in view of ISAAK et al. Thus, the only reason to combine the teachings of LI and ISAAK et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) over LI in view of ISAAK et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicants submit that dependent claims 5-13, 15-22, 25, and 27-31, which are at least patentable due to their dependency from claim 1 for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections, and an early indication of the allowance of claims 1, 5-13, 15-22, 25, and 27-31.

SUMMARY AND CONCLUSION

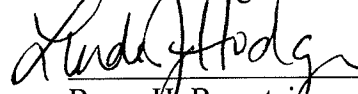
In view of the foregoing, it is submitted that the present response is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicants' invention as recited in claims 1, 5-13, 15-22, 25, and 27-31.

Accordingly, consideration of the present response, reconsideration of the outstanding Official Action, and allowance of all of the claims in the present application are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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August 23, 2010
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